

## Abstract

Females are 'choosy' while males are 'flashy' among most organisms. There are widespread pieces of evidence which suggest that males produce ornamental characters while females choose males with the best ornaments. Exhibiting choosiness often has adaptive value and in the past few decades, males exhibiting choice has been predicted and documented when some conditions are met. When males invest higher in reproduction or when they can perceive a variance in quality of the females, they do exhibit choice but there is no study on the impact on the outcome of choice brought by the ability of females to alter its quality. This study aims to address the question by using laboratory-adapted populations of *Drosophila melanogaster* evolved for higher immunity, whether the outcome of male's choice depends on female's infection status as reported in previous findings and whether the female's ability to clear off pathogen can affect the outcome of the choice. Our study does not report any choosiness shown by males. Inheritance of characteristics can happen in a non-genetic manner along with classic Mendelian genetic inheritance. A form of non-genetic inheritance of traits is the inheritance of characters by the stepchildren from the stepfathers. Body size of the offspring has been shown to be inherited from the stepfathers in Neriid flies. We made an attempt to examine if immunity related traits could inherit from the

stepfathers to the stepchildren in laboratory-adapted populations of *Drosophila melanogaster* . We have not found any evidence of such an effect.